



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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February 19, 2008

Curt Crawford  
Stormwater Services Section Manager  
King County Water and Land Resources Division  
201 South Jackson St., Suite 600  
Seattle, WA 98104-3855

RE: Revisions to the King County Surface Water Design Manual and Associated King  
County Code under S5.C.5 of the Phase I Municipal Stormwater Permit  
(WAR04-4501)

Dear Mr. Crawford;

The Washington State Department of Ecology (Ecology) has completed our review of the 2005 King County Surface Water Design Manual (SWDM) for equivalency with Ecology's 2005 Stormwater Management Manual for Western Washington (Ecology Manual). Ecology has performed this review only for the purpose of determining equivalency with the Ecology Manual and compliance with Special Condition S5.C.5.a and b.i – iv of the of the Phase I Municipal Stormwater Permit (Permit). This letter and attachment describes changes that King County must make to the SWDM and, where necessary, the associated King County Code (KCC) in order to comply with S5.C.5 of the Permit. Ecology appreciates King County's efforts to develop and maintain a drainage manual that is easy to use and integrates the best available science and engineering from the Ecology Manual into other drainage-related requirements, such as conveyance system sizing and flood control.

**Summary of Necessary Revisions**

King County and Ecology staff have worked together to develop a common understanding of the SWDM approach and the requirements identified in Appendix 1 of the Permit. Attachment #1 summarizes revisions that King County must make in order to obtain "equivalency" with the Ecology Manual and be in compliance with the Permit. Many of the identified revisions are minor and are not discussed further in this letter. Several revisions, however, may not be considered minor and do require changes to KCC. These revisions are discussed in more detail below.

- **Thresholds for Drainage Review.** Appendix 1 of the Permit identifies specific thresholds above which projects must undergo drainage review and apply "minimum requirements" to manage stormwater runoff quantity and quality. These thresholds are



based on a calculation of the amount of impervious area or converted forest area that generates no more than a 0.10 cubic feet per second (cfs) increase in the 100-year return flow. Some of the SWDM and associated KCC thresholds were calculated using a higher cfs threshold and therefore are not equivalent. Additionally, the thresholds that trigger drainage review must consider replaced impervious surfaces as well as new impervious surfaces. King County must revise the SWDM and associated KCC to use the thresholds listed in Appendix 1 of the Permit or those based on a 0.10 cfs increase. A different, but equivalent, threshold based upon maximum impervious and new pervious surfaces is approved for use in specified rural applications due to King County's existing land clearing restrictions and setback requirements.

- **Use of Adjustments and Variances.** Ecology understands that not all projects in all cases can meet the drainage requirements as written. The Permit identifies criteria to be used by the local government when considering whether to grant an adjustment or variance. Adjustments are based on sound engineering practices and still meet the objectives of safety, function and environmental protection. The variance (or exception) criteria are applicable when substantially equivalent environmental protection cannot be met due to a severe and unexpected economic hardship. King County's drainage code and the SWDM currently do not distinguish between adjustments and variances. King County's existing adjustment criteria and process are not equivalent to the criteria and process in the Permit. King County must revise the adjustment criteria and process to address the differences between adjustments and variances as described in the Permit.
- **Alternative Flow Control Requirements.** The Ecology Manual and the Permit identify the standard flow control requirement (matching developed discharge durations to pre-developed durations for the range of pre-developed discharge rates from 50% of the 2-year peak flow up to the full 50-year peak flow) for projects that do not discharge to "Flow Control-Exempt Receiving Waters." The SWDM currently differs in three primary ways:
  1. Additional receiving waters are identified as "flow-control exempt" (or Basic Flow Control) without sufficient analysis to support such claims. If King County wishes to exempt these additional receiving waters, King County must conduct the analyses and provide the results to Ecology for review and approval.
  2. King County uses an "historic site conditions assumption" that allows for an alternative pre-developed condition if the County has approved a basin plan. Ecology must also review and approve any basin plan that studies the specific conditions in the basin and supports alternative flow control or water quality treatment requirements.
  3. King County's "historic site conditions assumption" also allows for an alternative pre-developed condition if at least 80% of the developable land in the basin was developed prior to 1975. This criterion is arbitrary. Without a basin-specific study to support the alternative flow control requirement, Ecology cannot determine if it is equivalent to the Ecology Manual and applicable Permit requirements.

If King County revises the SWDM and associated KCC in accordance with the attachment and the above-listed major issues, that revised version of the SWDM (together with associated KCC sections) will be considered equivalent to the Ecology Manual and Permit requirements.

#### **Relevance to Other Municipalities Using the SWDM**

The Phase II Municipal Stormwater Permit gives Phase II Permittees the option of using a drainage manual that has been determined by Ecology to be equivalent to the Ecology Manual and Permit requirements. Ecology recognizes that many jurisdictions are anxiously anticipating the results of our equivalency review of the SWDM. For this reason, it is important to highlight the fact that KCC Chapter 9.04 Surface Water Runoff Policy and the SWDM alone do not achieve compliance with applicable Phase I Permit requirements and equivalency with the Ecology Manual. King County has other adopted requirements that help them achieve full compliance and equivalency. These other adopted requirements and what aspects of the Ecology Manual or permit requirements that they address are listed below:

- Construction erosion and sediment controls are required for all new and redevelopment projects (Section 3.2 and 3.3 of Appendix 1), regardless of project size. To meet this Phase I Permit requirement, King County relies on KCC Chapter 16.82.095 Clearing and Grading to require erosion and sediment controls at all sites where a site is disturbed, regardless of whether a permit is required.
- The application of construction erosion and sediment control requirements and the soil quality and depth BMP for flow control are not currently located in the SWDM, but rather in KCC Chapter 16.82 Clearing and Grading.
- The wetlands protection requirement (Minimum Requirement #8) is not contained in the SWDM, but rather is satisfied by the wetland protection requirements contained in KCC Chapter 21A.24 Critical Areas.
- Ecology is approving the County's rural treatment and flow control exemptions for up to 4% total impervious area and 15% new pervious area because of the County's rural area clearing restrictions contained in KCC Chapter 16.82 Clearing and Grading and its buffer requirements contained in KCC Chapter 21A.24 Critical Areas.

Where applicable, local governments electing to use the SWDM will need to have similar codes in place, or develop other methods of addressing these topics, in order to make a revised SWDM work for their jurisdictions. Also, other local governments do not need to support a local experimental design adjustment process because all new technologies must go through Ecology's testing protocol and receive a use designation before those technologies can be approved for installation.

#### **Next Steps**

In order to expedite the approval process and meet Permit requirements (S5 C.5.b iv), the following steps should be taken:

1. King County revises the SWDM and associated KCCs in accordance with this letter and attachment.

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2. King County formally submits a tracked changes version of the SWDM and associated KCCs to the assigned Ecology Permit Specialist in accordance with the Permit. (Note: submittal received February 19, 2008).
3. After reviewing the submitted documentation, Ecology responds in writing within 60 days of the submittal. This response will be an approval letter if King County makes the revisions identified.
4. King County notifies the assigned Ecology Permit Specialist promptly of any anticipated or unanticipated events that would interfere with King County's ability to meet the adoption deadline of August 2008 as specified in the Permit.

Thank you for your efforts to improve stormwater management.

Sincerely,



Kelly Susewind  
Assistant Program Manager - Operations  
Water Quality Program  
Department of Ecology

Enclosure

cc: Kevin Fitzpatrick, Water Quality Section Manager, Dept. of Ecology NWRO  
Garin Schrieve, Water Quality Section Manager, Dept. of Ecology SWRO  
Rachel McCrea, Municipal Stormwater Specialist, Dept. of Ecology NWRO  
Ed O'Brien, Dept. of Ecology HQ  
Permit file